



## Natural Heritage & Endangered Species Program

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### LEAST TERN (*Sterna antillarum*)

State Status: **Special Concern**



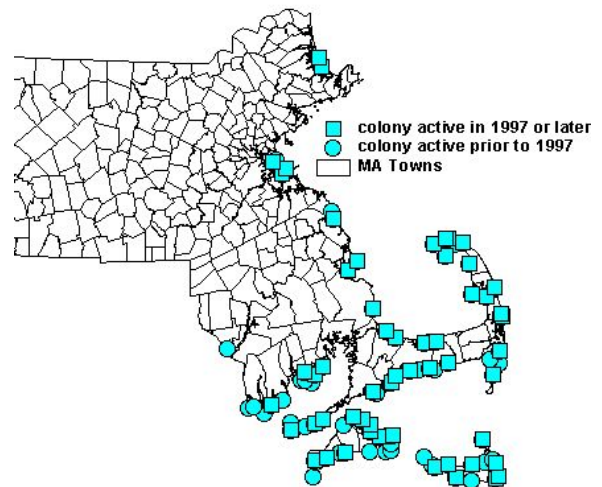
B. Byrne, MDFW

Diminutive yet feisty, the Least Tern is a spring and summer colonial nester on Massachusetts' sandy beaches. For nesting, it favors for sites with little or no vegetation. This preference coincides with humans' most desired spots for recreation and development, resulting in conflicts of use and loss of considerable Least Tern habitat in the past century. Presently, the Least Tern is considered a Species of Special Concern in Massachusetts, and continued management of nesting habitat and colonies is necessary to protect the state's population.

**Description.** The Least Tern measures 21-23 cm in length and weighs 40-62 g. In breeding plumage, the adult has a black cap and eyestripe, white forehead, pale gray upperparts, white underparts, a black-tipped, yellow-orange bill, and yellow-orange legs. Outside the breeding season, the crown and eyestripe become flecked with white, a dark bar forms on the wing, and the bill and legs darken. Hatchlings are tan or buff speckled black. Juveniles are brown and buff on the back; pale feather edgings give a scaly appearance. Underparts are white, the crown is buff speckled black, and the eyestripe and nape are blackish. The Least Tern's voice is high and shrill. Its repertoire includes *zwreep* and *kit-kit-kit-kit* alarm calls, *k'ee-you-hud-dut* recognition call, and the male's *ki-dik* contact call.

**Similar species in Massachusetts.** Common (*Sterna hirundo*), Roseate (*Sterna dougallii*), and Arctic (*Sterna paradisaea*) Terns are all much larger, have entirely black foreheads and crowns in breeding plumage, have different colored bills and, proportionately, have much longer tails.

**Distribution and Migration.** The Least Tern breeds in North, Middle, and South America and the Caribbean. In North America, it breeds on the Atlantic coast from Maine to Florida, along the Gulf coast, on the Pacific coast from California to Mexico, and inland, principally along major tributaries of the Missouri, Ohio, and Mississippi rivers. Massachusetts birds arrive in early-May to nest at coastal locations statewide (Fig. 1). The largest populations occur on Cape Cod and the Islands (see Status below). The Least Tern leaves Massachusetts by early-September (and in some years is gone by early-August) to begin its journey to wintering quarters, which are mainly off the eastern coasts of Central and South America, south to northern Argentina.



**Figure 1. Distribution of present and historic Least Tern nesting colonies in Massachusetts.**

**Breeding and Foraging Habitat.** In Massachusetts, the Least Tern nests on sandy or gravelly beaches periodically scoured by storm tides, resulting in sparse or no vegetation; it also takes advantage of dredge spoils. In other areas of the country, it nests on riverine sandbars, mudflats, and gravel roofs. Along coasts, the Least Tern forages in shallow-water habitats, including bays, lagoons, estuaries, river and creek mouths, tidal marshes, and ponds.

**Food habits.** The Least Tern primarily consumes small fish, but also takes crustaceans and insects. The most common prey items in Massachusetts are sand lance, herring, and hake. This tern hovers 1-10 m over water, then plunges to the surface to capture prey. Insects are captured on the wing and by skimming the water surface. It may forage singly or in small flocks of 5-20 birds. Foraging generally occurs close to the nesting site, and up to 3 km away from colonies in response to an abundance of prey.

**Breeding.**

***Phenology.*** Least Terns arrive in Massachusetts in early May. Colony formation and courtship quickly ensue. Egg laying commences a couple weeks later than that of Common and Roseate Terns: dates range from 20 May to 23 August. Incubation lasts about 3 wk, as does the nestling period. The terns have mostly departed for winter locales by early-September, and in some years by early-August.

***Colony.*** The Least Tern is gregarious and nests in colonies of just a few to > 2000 pairs, but colonies usually number < 25 pairs. Currently, the largest colony in Massachusetts numbers about 600 pairs, but in some years this number is much higher depending on the degree of dispersion of the birds. In Massachusetts, the Least Tern often nests in association with the Piping Plover (*Charadrius melodus*), with which it shares similar nesting habitat requirements, but only rarely forms mixed colonies with other tern species.

***Pair bond and parental care.*** The Least Tern is monogamous. In a California study, about half the birds retained the same mate for more than one year. Courtship behavior includes aerial and ground displays. In the aerial display, a fish-carrying male is chased by 1-4 females; the display ends in a stiff-winged glide, during which participants cross each others' paths and bank towards each other repeatedly. Courtship on the ground includes parading and posturing. Males also feed females

during courtship and throughout incubation. Incubating and chick-rearing duties are shared by both parents, but not equally: females typically do about 80% of the incubating, and more of the brooding/attending; males may do more feeding of chicks.

***Nest.*** The nest, which is often just slightly above the high tide line, is a shallow scrape in the substrate to which vegetation, shell, or pebbles may be added. Considerable nest loss can be attributed to storms, given the low-lying nature of many nests. Mean internest distance at a New Jersey colony was about 9 m by the end of incubation.

***Eggs.*** Eggs are oval or sub-elliptical, and measure about 31 x 23 mm. Color and markings are very variable, but eggs generally have a beige or light olive-brown ground color with dark spots and splotches. Clutch size is 2 or (especially for interior Least Terns) 3; sometimes 1. Incubation, which is inconsistent until the clutch is complete, lasts about 21-23 days in Massachusetts.

***Young.*** Chicks are semi-precocial. At hatching, they are downy and eyes are open. Parents brood chicks for the first 1-2 days, after which time chicks leave the nest and usually wander up to 200 m from nest site (up to 1 km in response to disturbance). Parents carry prey to chicks in their bills at a rate of about 2 fish/h. While adults forage, chicks seek shelter in vegetation or near debris; older chicks may wait at the water's edge. Fledging occurs after about 3 wk. Young disperse from the natal site within 3 wk of fledging, and are still fed by parents for up to 8 wk after fledging. Family units are thought to migrate together.

**Predation.**

***Predators.*** A wide variety of birds and mammals, crabs, and fish are predators of Least Tern eggs, chicks, and adults. Avian predators include crows, gulls, Great Blue Heron, Black-crowned Night-Heron, Ruddy Turnstone, Sanderling, Great Horned Owl, Peregrine Falcon, American Kestrel, and Northern Harrier, among others. Mammalian predators include fox, coyote, raccoon, skunk, opossum, feral hog, cat, dog, and rat.

***Responses to predators and intruders.*** Within the colony, nesting is fairly synchronous as compared to that of Massachusetts' larger terns; this may be a strategy to reduce the amount of time the Least Tern colony is vulnerable to predation. Least Terns eggs and chicks are cryptically colored. Hatched eggshells are removed from the nest site (the white inner shell is obvious). When eggs and chicks are vulnerable (for instance, to most avian and human intruders), adults give alarm calls, dive, defecate on, and attack intruders. When adults are vulnerable (for

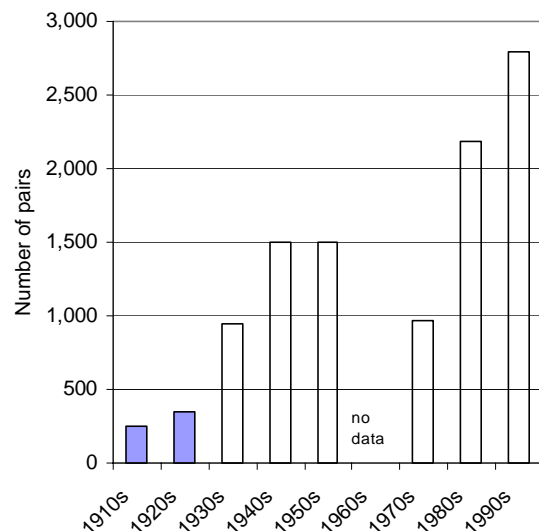
instance, to canids), they desert the nest or fly high over the predator. Repeated intrusions by nocturnal predators, in particular, may cause the colony to desert the site. Shifts between different nesting sites within the breeding season in response to disturbance are common for this species. Terns become more defensive as the season progresses. Birds experienced with human intruders are more aggressive than inexperienced birds, and occasionally will even strike humans, earning the Least Tern the nickname, “little striker”.

**Life History Parameters.** Most Least Terns breed annually starting at 3 yr, some at 2 yr. One brood per season is raised, but Least Terns may renest up to 3 times if eggs or chicks are lost early enough in the season. Annual productivity, which is difficult to estimate because of the high mobility of chicks shortly after hatching, is very variable, but was estimated at about half a chick per pair at several locations in the country. There are no data from Massachusetts, but elsewhere survival from fledging to 2-3 yr was estimated as about 80%, and annual survival of adults was estimated at over 85%. The oldest Least Tern on record was 24 yr – 1 mo. It was banded in Massachusetts and recovered in New Jersey.

**Status.** The Least Tern suffered the same fate as Massachusetts’ larger terns at the end of the 19<sup>th</sup> century – they were slaughtered for use as decorations for hats. By the early 20<sup>th</sup> century, only about 250 pairs of Least Terns remained in the state. Following legal protection, numbers increased to the 1,500 pair level by the 1950s, but declined again (perhaps as a result of increased recreational use of beaches) to perhaps 900 pairs by the early 1970s (Fig. 2). More aggressive protection of breeding colonies since then has contributed to a fairly steady increase in numbers. In 2001, 3,420 pairs nested in the state, a record high for the past 100 years. Currently nesting at 54 breeding sites, the Least Tern is Massachusetts’ most widely distributed tern. The largest colonies in 2001 occurred at: Dunbar Point (Kalmus Park), Barnstable (599 pairs); Tuckernuck Island, Nantucket (432); Sylvia State Beach, Oak Bluffs (370); and Dead Neck-Sampsons Island, Barnstable (257). Favored breeding sites remain in flux, however, due to the species’ sensitivity to disturbance, and because of its preference for nesting on unvegetated beaches. The Least Tern is a Species of Special Concern in Massachusetts.

**Conservation and Management.** Since the 1970s, most sites have been fenced and posted with signs to discourage human intrusion into colonies. At many

sites, Piping Plover and Least Tern management is integrated due to the species similar nesting habitat requirements and threats. Because of the Least Tern’s propensity for nesting on mainland and barrier beaches (in contrast to offshore islands), disturbance of colonies by humans and predators remains a chronic problem. The principal conservation challenge confronting wildlife managers in protecting Least Terns is to maintain adequate separation between people on the beaches and the nesting colonies to enable the birds to successfully reproduce. Humans (and their dogs) in close proximity to colonies may keep adult birds off their nests, contributing to chick and egg mortality due to temperature extremes; dogs also kill chicks. Off-road vehicles (ORV’s) crush tern eggs and chicks and destroy habitat – ruts created by tires trap chicks, preventing normal movements and further exposing them to interactions with vehicles. Garbage left on the beaches by humans may attract predators to colonies and cause birds to shift to alternate breeding sites. Given the habitat that the Least Tern selects, intensive and ongoing management of colonies will always be necessary if this species is going to be adequately shielded from disturbance. Efforts to limit coastal development are also critical to protecting the viability of the state’s population.



**Figure 2. Least Tern population trends in Massachusetts, 1910s to 1990s (modified from Blodget and Melvin 1996).**

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C. S. Mostello, 2002

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